



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/534,042	11/15/2005	Takuji Yoshimoto	0171-1205PUS1	2382

2292 7590 08/21/2009
BIRCH STEWART KOLASCH & BIRCH
PO BOX 747
FALLS CHURCH, VA 22040-0747

EXAMINER

YAMNITZKY, MARIE ROSE

ART UNIT	PAPER NUMBER
----------	--------------

1794

NOTIFICATION DATE	DELIVERY MODE
-------------------	---------------

08/21/2009

ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

mailroom@bskb.com

Office Action Summary	Application No. 10/534,042	Applicant(s) YOSHIMOTO ET AL.	
	Examiner Marie R. Yamnitzky	Art Unit 1794	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 16 April 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-14 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

1. This Office action is in response to applicant's amendment filed April 16, 2009, which amends claims 1 and 7-9, and adds claims 12-14.

Claims 1-14 are pending.

2. The rejections under 35 U.S.C. 102(b) and 102(e) as set forth in the previous Office action (notification date: October 17, 2008) are overcome by claim amendment.

The provisional obviousness-type double patenting rejection based on copending Application No. 10/577,438 in view of Fujita et al. has been reconsidered and is withdrawn.

The obviousness-type double patenting rejection based on U.S. Patent No. 7,341,678 in view of Fujita et al. has been reconsidered and is withdrawn.

3. Claims 2, 3, 5, 12 and 14 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The limitations of claim 2, with claims 3 and 5 dependent therefrom, are inconsistent with the limitations of claim 1 as amended to require an oligomer having a number-average molecular weight of 200 to 2,000. The phrases "a charge-transporting monomer having conjugated units or" and "said oligomer having a number-average molecular weight of 200 to 5000" should be deleted from claim 2.

The limitations of claim 5 are not fully consistent with the limitations of claim 1 as amended to require an oligomer having a number-average molecular weight of 200 to 2,000. For

Art Unit: 1794

example, Formula (4) encompasses charge-transporting substances that are not oligomers (such as when each of p and r is 0 and q is 1; or when each of p, q and r is 1 and X and Y are different species).

The limitations of claim 12 are not clear because the phrase “high-solvency” is relative and insufficient guidance is provided in the specification to determine the metes and bounds of a high-solvency solvent as required for claim 12. While the last paragraph on page 17 provides a few examples of what applicant considers to be a high-solvency solvent, these examples are insufficient to define what is meant by “high-solvency”. It is also not clear if a particular solvent may be considered to be a high-solvency solvent in combination with some charge-transporting substances/materials but not others. The charge-transporting substance/material as defined in claim 1 covers a broad scope of substances/materials, and it is reasonable to expect that different substances/materials within the full scope of substances/materials usable for the varnish of claim 1 will not necessarily have the same solubility in a specific solvent.

Proper antecedent basis is lacking for “said solvent” as recited in the last line of claim 14. The varnish of claim 14 requires more than one solvent.

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kosho et al. (JP 2002-151272) in view of Ito et al. (US 5,993,694).

Kosho et al. disclose charge-transporting oligoanilines within the scope of the charge-transporting oligomer required for the varnish of claim 1, and disclose charge-transporting organic materials composed of an oligoaniline and a dopant substance as within the scope of those recited in claim 1. Kosho et al. teach dissolving the oligoaniline and dopant in a solvent or mixture of solvents, and using the resultant composition to form a charge transport auxiliary layer in an organic electroluminescent device.

Kosho et al. do not disclose using the oligoaniline-containing compositions to make a solar cell, but it was known in the art at the time of the invention that similar aniline derivatives could be used to make electroluminescent devices and photovoltaic devices. For example, see column 1, line 18-19, of Ito et al. A solar cell is a photovoltaic device.

Having knowledge of the teachings of Ito et al., it would have been obvious to one of ordinary skill in the art at the time of the invention to use the oligoaniline-containing compositions of Kosho et al. to make a solar cell. With respect to the high-viscosity solvent required for the varnish of claim 1, which is used to make the solar cell of claim 10, the solvent does not remain in the final product. Kosho et al. teach the components of the varnish of claim 1 that will remain after evaporation of the solvent, and Ito et al. demonstrate that it was known in the art at the time of the invention to use aniline derivatives similar to those taught by Kosho et al. in photovoltaic devices. One of ordinary skill in the art at the time of the invention, being

motivated to make a solar cell using the oligoaniline-containing compositions of Kosho et al., would provide a solar cell that has the same components as a solar cell according to claim 10.

6. Claims 1-4, 6-9 and 11-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fujita et al. (US 6,720,029) in view of Kosho et al. (JP 2002-151272), with evidence of inherency provided by Flick (*Industrial Solvents Handbook*, 5th edition, p. 367).

Fujita et al. describe coating liquids for forming an organic layer of an organic LED display, which comprise an organic material and at least one low volatile liquid solvent (e.g. see the abstract). Fujita et al. disclose that suitable solvents include propylene glycol (e.g. col. 5, l. 16). The viscosity of propylene glycol is within the range set forth in present claims 1 and 14 as evidenced by Flick. Fujita et al. also disclose that solvents within the scope of those recited in present claims 13 and 14 for the high-solvency solvent required by present claims 12-14 can be used, and that combinations of solvents may be used (e.g. c. 5, l. 19-26).

Fujita et al. teach that known charge-transporting materials may be used, and that dopants such as acceptors or donors may be included (e.g. see c. 5, l. 1-10 and 48-60). Specific examples of charge-transporting materials taught by Fujita et al. include low molecular weight materials, as well as polymers such as polyaniline. Fujita et al. do not disclose a charge-transporting material that is an oligomer having a number-average molecular weight of 200 to 2000, but such charge-transporting materials were known in the art at the time of the invention.

Kosho et al., e.g., disclose charge-transporting oligoanilines within the scope of the charge-transporting oligomer required for the varnish of claims 1-4, 6 and 11-14, and disclose

charge-transporting organic materials composed of an oligoaniline and a dopant substance as within the scope of those required for the varnish of claims 1-4, 6 and 11-14, and used for the method of claims 7-9. Kosho et al. teach dissolving the oligoaniline and dopant in a solvent or mixture of solvents, and using the resultant composition to form a charge transport auxiliary layer in an organic electroluminescent device. Kosho et al. disclose solvents within the scope of those recited in present claims 13 and 14 for the high-solvency solvent required by present claims 12-14, and disclose solvents that are also disclosed by Fujita et al. For example, see paragraphs [0008]-[0021].

Given Fujita's disclosure that known charge-transporting materials can be used, and Kosho's disclosure demonstrating that oligoanilines were known at the time of the invention to be usable for the same purpose as the charge-transporting materials taught by Fujita, it would have been an obvious modification to one of ordinary skill in the art at the time of the invention to use the charge-transporting materials of Kosho in coating compositions such as taught by Fujita. Absent a showing of unexpected results commensurate in scope with the claims, it is the examiner's position it would have been within the level of ordinary skill of a worker in the art at the time of the invention to determine suitable solvents and combinations of solvents for use in the composition within Fujita's guidelines.

7. Claims 1-3, 5, 7-9 and 12-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fujita et al. (US 6,720,029) in view of Amano et al. (JP 04-304465), with evidence of inherency provided by Flick (*Industrial Solvents Handbook*, 5th edition, p. 367).

Fujita et al. describe coating liquids for forming an organic layer of an organic LED display, which comprise an organic material and at least one low volatile liquid solvent (e.g. see the abstract). Fujita et al. disclose that suitable solvents include propylene glycol (e.g. col. 5, l. 16). The viscosity of propylene glycol is within the range set forth in present claims 1 and 14 as evidenced by Flick. Fujita et al. also disclose that solvents within the scope of those recited in present claims 13 and 14 for the high-solvency solvent required by present claims 12-14 can be used, and that combinations of solvents may be used (e.g. c. 5, l. 19-26).

Fujita et al. teach that known charge-transporting materials may be used, and that dopants such as acceptors or donors may be included (e.g. see c. 5, l. 1-10 and 48-60). Specific examples of charge-transporting materials taught by Fujita et al. include low molecular weight materials, as well as polymers. Fujita et al. do not disclose a charge-transporting material that is an oligomer having a number-average molecular weight of 200 to 2000, but such charge-transporting materials were known in the art at the time of the invention.

Amano et al., e.g., disclose charge-transporting 1,4-dithiin derivatives within the scope of the charge-transporting oligomer required for the varnish of claims 1-3, 5 and 12-14, and used for the method of claims 7-9.

Given Fujita's disclosure that known charge-transporting materials can be used, and Amano's disclosure demonstrating that charge-transporting 1,4-dithiin derivatives were known at the time of the invention, it would have been an obvious modification to one of ordinary skill in the art at the time of the invention to use the charge-transporting materials of Amano in coating compositions such as taught by Fujita. Absent a showing of unexpected results commensurate in

scope with the claims, it is the examiner's position it would have been within the level of ordinary skill of a worker in the art at the time of the invention to determine suitable solvents and combinations of solvents for use in the composition within Fujita's guidelines.

8. Applicant's arguments filed April 16, 2009 have been fully considered when making the rejections set forth in this action.

With respect to claim 10, which is directed to a solar cell made with the varnish of claim 1, the solvent recited in claim 1 does not remain in the final product. Kosho et al. teach the components of the varnish of claim 1 that will remain after evaporation of the solvent, and Ito et al. demonstrate that it was known in the art at the time of the invention to use aniline derivatives similar to those taught by Kosho et al. in photovoltaic devices. Applicant's argument regarding the problem of surface irregularities is not persuasive as to the patentability of claim 10, which is silent with respect to surface irregularities (or lack thereof).

With respect to the other rejections under 35 U.S.C. 103(a), applicant's arguments regarding problems solved by, and advantages/improvements provided by, the charge-transporting varnish of the present claims are not persuasive as to the patentability of the claims over the applied prior art. Materials within the scope of the charge-transporting substance/oligomer/organic material utilized in the varnish of the present claims were known at the time of the present invention. The prior art also demonstrates that it was known at the time of the present invention to make compositions suitable for coating applications by dissolving a charge-transporting substance/oligomer/organic material in a solvent or combination of solvents,

including solvents within the scope of those recited in claims 13 and 14, and that it was known that solvents within the scope of the high-viscosity solvent required for the presently claimed varnish could also be used to make compositions suitable for coating applications. While the prior art does not provide a specific example of a composition comprising the charge-transporting substance/oligomer/organic material required by the present claims in a solvent or combination of solvents including at least one high-viscosity solvent as required by the present claims, it would have been within the level of ordinary skill of a worker in the art to select suitable solvents from known solvents.

Regarding advantages/improvements provided by a varnish according to the present claims, the data of record do not demonstrate unexpected results commensurate in scope with the claims. While the varnish of the present claims requires a high-viscosity solvent as recited in claims 1 and 14, the varnish composition is open to other solvents that are not high-viscosity solvents, and claims 12-14 require additional solvents. In addition to the “high-solvency” solvent required by claims 12-14, the varnish may comprise additional solvents as described in the first two paragraphs on page 18 of the specification. None of the present claims limit the amount of high-viscosity solvent in the varnish, and the claims encompass varnishes in which a relatively large proportion of the varnish (and/or relatively large proportion of the solvent in the varnish) is a solvent within the scope of those explicitly taught by Fujita et al. and by Kosho et al. There is insufficient evidence of record to demonstrate that the mere inclusion of a high-viscosity solvent in a varnish, regardless of relative amounts of high-viscosity solvents and other components in the varnish, provides unexpected results.

Art Unit: 1794

9. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

10. Any inquiry concerning this communication should be directed to Marie R. Yamnitzky at telephone number (571) 272-1531. The examiner works a flexible schedule but can generally be reached at this number from 7:00 a.m. to 3:30 p.m. Monday and Wednesday-Friday.

The current fax number for all official faxes is (571) 273-8300. (Unofficial faxes to be sent directly to examiner Yamnitzky can be sent to (571) 273-1531.)

/Marie R. Yamnitzky/
Primary Examiner, Art Unit 1794

MRY
August 17, 2009